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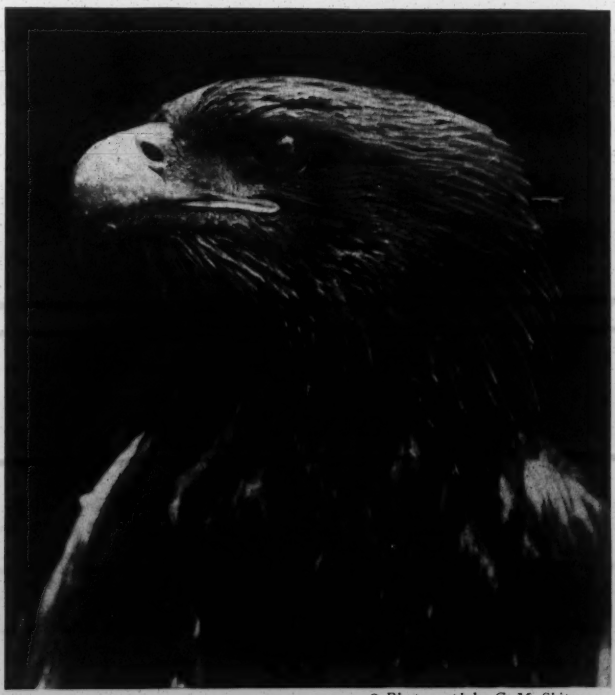

© *Photograph by C. M. Shipman*

AMERICA'S EMBLEM, THE "BALD" EAGLE

The term "bald" is probably a corruption of "piebald," and refers to the bird's sharp-cut pattern of white head and neck, and brown body (See Bulletin No. 3).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Gold Plays Major Rôle in Finance and Industry

THE United States may be off the gold standard, but gold still plays a major rôle in both finance and industry, here and abroad.

Gold's part in the affairs of civilization and something of the romance that clings to the yellow metal are disclosed by Frederick Simpich, in a special communication to the National Geographic Society.

Only Half of Mined Gold Can Be Located

"When gold was used merely as a personal adornment, in plate, or in the decorative arts," Mr. Simpich writes, "it swayed the destiny only of those who possessed it, as in Peru or Mexico, or when Rome paid chariot loads of it to the barbarians to save herself from being sacked.

"But when gold came into wide use as money, to measure wages, prices and the cost of living in all nations, then it began to influence the whole world. Tariffs, the gold standard, foreign exchange and debts, arbitrage—gold brings all into the picture of international relations.

"Only about half of the world's gold production since the discovery of America can be definitely located. Since 1492 the world has mined $22,413,757,117, as officially reported. Of this, about four-fifths has been produced since 1860. But to-day the world's nations hold, as monetary gold stock, only about $11,940,000,000.

Gold in Street Signs and in Teeth!

"The missing ten billions or more disappeared, much of it, just as in olden times. In 1931, for instance, of some $49,000,000 of gold mined in the United States alone, about $29,000,000 was consumed in industry. In America to-day it is the goldbeaters and dentists who eliminate much gold from circulation.

"Street signs in Washington, D. C., are of cast iron, with raised letters in gold leaf. In the shopping districts of any city you see gold lettering on windows and advertising signs. On side streets three big gilded balls hang over pawnshop doors. Even police cars and fire trucks are all aglitter with gold-leaf trimmings.

"On one New York skyscraper $28,000 was spent for gold-leaf decorations. In gilded ballrooms, on furniture, picture frames, in lettering on railway coaches and the delivery trucks of fashionable shops, fortunes in gold leaf are wearing away—gold that is forever lost, for leaf cannot be scraped off and reclaimed.

"Gold may be hammered so thin by goldbeaters that a pile of 1,200 sheets of gold leaf is thinner than a sheet of ordinary writing paper!

India Is World's Greatest "Hoarder"

"Europe's gold when Columbus first sailed westward amounted to less than some present-day family fortunes. Part of this Europe mined; part she had plundered from other lands. Some of her gold so gained was drained off in trade to India and the Orient.

"India, in time, became the world's great gold hoarder. 'The treasure sink of the world,' she has been called. Just how much gold is still hidden in the secret vaults of her princes, nobody knows. From 1873 to 1930, however, the records show that India imported about $2,800,000,000 in gold.

"In the monetary system of the United States the gold dollar, though not now made, is the unit of value; it weighs 25.8 grains and is 0.900 fine. Gold coins of $5, $10, and $20 are now minted, known as half eagles, eagles, and double eagles. Among workers in the mint, the eagle's picture is always called 'The Goose.' One thousand dollars of United States gold coin weighs just 3.685 pounds avoirdupois, and at the mint I found it, in bar form, an easy handful.

Reasons for Increase in Gold

"Since the World War began the world has swiftly increased the effective stock of gold. This has, in fact, grown by about $6,800,000,000, or 140 per cent, in the last nineteen years. More gold is being mined, less has been used recently in the trades, and private hoardings are being surrendered in India. These are the chief causes of the increase.

"Growth in the world's gold since 1922 has been largely due to increased output in South

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© Photograph from Ruth Kedzie Wood

THEIRS IS ONE OF THE WORLD'S MOST UNUSUAL PROFESSIONS

Portuguese toothpick-makers whittling "palitos," or "little poles," for a living. Hundreds in Portugal follow this humble trade. Willow poles, the bark stripped off so the wood can dry, are stacked about the houses. A leather pad is worn on the knee, so that if the knife slips the whittler will not be cut. Finished toothpicks are placed in the baskets to be carried on the heads of the women to the town markets (See Bulletin No. 5).

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Tientsin, Commercial Capital of North China

JAPANESE advances beyond the Great Wall into China proper direct attention upon Peiping (Peking), capital of the former Chinese Empire, and Tientsin, capital of Chihli province and chief commercial city of northern China.

The fame and beauty of Peiping have somewhat overshadowed the thriving trading center, Tientsin, which lies about four-fifths of the distance between Peiping and the sea. Tientsin, a metropolis of more than a million inhabitants, is one of the five largest cities in China.

Focus of Many Trade Routes

Tientsin owes most of its importance to the network of transportation lines—railways, river, the Grand Canal, highways, and caravan routes—that focus upon it. These arteries of commerce extend into all parts of the Chihli district and continue into Shantung, Jehol, Manchuria (Manchukuo), Honan, Shansi, Kansu, and Inner Mongolia.

Once Tientsin, too, handled the tribute rice which was sent to Imperial Peking from the south. The grain was brought by boat up the Grand Canal; and at Tientsin, the northern terminal of the famous waterway, the rice had to be unloaded and carried overland to the old capital. Steamship lines and railways have replaced the Grand Canal as a commerce carrier, and the rice tribute is no longer exacted, but Tientsin continues its development as a trade crossroad.

For centuries, too, Tientsin was a strong military center; the key to Peiping. In 1368 it had a military garrison, and in 1404 the city was enclosed within a heavy wall. Since then it has been the scene of many battles. The city was besieged by Taiping rebels in 1853; it was bombarded by the British and French in 1860 when the Chinese failed to ratify a treaty; and, during the Boxer uprising in 1900, the Chinese cut off the foreign concessions from communication with the outside world for twenty-seven days.

Old Walls Give Way to Boulevard

Following the Boxer trouble the walls were demolished, and the Chinese agreed not to fortify the area between Peking and the sea. The material from the old wall was used for roads and as ballast in railway beds; the site of the walls became a wide thoroughfare.

The city is situated on a great alluvial plain about 80 miles southeast of Peiping, and 20 miles by railroad from the Gulf of Chihli. The river, Peiho, coming in from the northwest, twists through the city, and, after its junction with the Grand Canal, becomes the Haiho the rest of the way to the sea. Once the Haiho looped back and forth for 80 miles to the sea, but in recent years the main channel has been shortened to 35 miles.

Because of heavy deposits of silt, however, many steamers are forced to unload cargoes at Tangku, only a few miles up the river from the coast. Lighters bring the cargoes to the business houses of Tientsin.

All along the river and at Tientsin are many salt works, cotton mills and flour mills. Flour milling is the chief industry, drawing upon the vast wheat lands that lie in the rural districts beyond Tientsin. Twelve large American flour mills and six cotton centers, operating nearly 220,000 spindles, give employment to thousands of Chinese workers. Because it is near the extensive grazing districts of north China, Tientsin is also the chief wool-exporting center of the country.

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Africa and Canada. Since 1929, however, our own gold-mine yield has slightly increased. All gold mined in the world in 1932 is estimated now at $460,000,000.

"Most of the great gold strikes, say mining engineers, have probably been made. The world has been more thoroughly prospected for gold than for any other metal. It may be vain, then, to hope for another series of gold finds as rich as was Cripple Creek, the Lena, the Rand, or the Klondike.

"Yet from year to year gold strikes of varying importance are constantly recorded. Exciting tales of rich strikes, of dazzling fortunes exposed by one lucky stroke of the pick, the spirit of adventure and romance that clings to the gold hunter's career, leave man indefatigable in his search."

Note: Students preparing unit assignments on money and currency will find timely references in "Men and Gold," *National Geographic Magazine*, April, 1933. See also "Ontario, Next Door," August, 1932; "Colorado, a Barrier That Became a Goal," July, 1932; "Under the South African Union," April, 1931; "This Giant That Is New York," November, 1930; "To-day on 'The Yukon Trail of 1898,'" July, 1930; "Gentlemen Adventurers of the Air," November, 1929; "Trailing History down the Big Muddy," July, 1928; "The Geography of Money," December, 1927; "On the Trail of the Air Mail," January, 1926; and "Cairo to Cape Town Overland," February, 1925.

Bulletin No. 1, May 8, 1933.

© *Photograph by R. P. Lucas*

MAN WILL ENDURE HARDSHIP AND DANGER FOR GOLD

A modern gold miner tunneling for the precious yellow metal in the heart of a Colorado mountain. Some Colorado mines run 500 to 1,000 tons daily through their mills, for most ore to-day is of low value, and the gold extracted is frequently only a few dollars a ton. After this miner has made a hole with a pneumatic or air-driven drill, dynamite will be used to loosen the ore-bearing rock.

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"Save the Eagle," Bird Lovers Plead

THE white-headed or bald eagle, whose rugged profile adorns American seals and coins as the emblem of the Nation, is in danger of being exterminated. No Federal laws protect him from gunners, and only five States out of forty-eight offer him any legal refuge.

The National Association of Audubon Societies has taken up the fight to preserve America's bird of freedom. Bird lovers declare that the bald eagle has been misrepresented as an enemy of farmers and poultrymen. But it offsets the theft of an occasional lamb, pig or chicken by cleaning up river banks and beaches of dead fish. The eagle's principal diet, however, is fresh fish.

Ranges over Nearly Entire Continent

The choice of a national emblem could hardly have been more appropriate than in the case of the American eagle. A true native of America, the white-headed or bald eagle ranges over nearly the whole of the North American continent.

In action the eagle is the true "king of birds." Whether soaring and circling far above the earth or plunging like a meteor from the sky, whether screaming defiance at the storm or fiercely striking his prey, he has seemed the very embodiment of freedom and power to men of every age. His effigy or profile has been emblazoned on the chariots of warriors and shields of knights, or, raised aloft on poles and banners, has followed legions into battle from the days of Marius to those of Napoleon, and the World War.

In its structure and habits, the eagle is a large hawk, of close kin to the falcons and buzzards, but the biggest, boldest, and most powerful of them all. The female, which in the American eagle is the larger sex, may attain a length of 43 inches and a wing-spread of 8 feet. It is a stranger to fatigue, can probably lift its own weight, and has been known to carry a lamb over a distance of five miles.

Our eagle is content to subsist upon fish whenever there is an ample supply, but it is too fond of chicken dinners, mutton chops, and suckling pig to be popular in rural communities.

Can Fight Like Demons

All eagles, like many of the hawks, when wounded or hard pressed, will fight like demons, and we might expect them to fight to protect their young; but, while some will do this, others will not. Trusting its young to the inaccessibility of their nest, it usually keeps at a safe distance whenever this is approached, but, should the home be placed low or in more remote regions, the marauder will do well to watch his step or he may meet with the surprise of his life. Like the she-bear, the eagle often will defend its young, and in attack it is a swift and formidable adversary.

The monarch of the air is the greatest home-keeper of his class. His eyrie is his castle. In it his eaglets spend the first ten weeks of their life—from mid-April until early July—and it is the rendezvous, lookout point, and dining table for the parents during the remainder of the year.

Two or three dull white eggs, resembling those of the domestic goose, are laid in the nest. In from four to five weeks, the young are hatched in white down, which contrasts sharply with dark eyes and almost black, hooked bills. This covering is shortly replaced by gray down which in turn is gradually combed off.

Early in June the eaglets become sleek through incessant toilet, and, with their new brown dappled dress and clean yellow legs, make a fine appearance. They are nearly as large as their parents and have a wing-spread of more than 6 feet. Yet two to three weeks of voracious feeding and ardent exercise are still required before they gain sufficient courage to "take off" under their own power.

Eagles Mate for Life

When the nesting season comes round, the mated pair, whom only death separates, resort to their old eyrie and build upon its top a new nest or layer of sticks and stubble. Finally, the tree, weighted by an ever-increasing mass of vegetable decay, breaks and falls in a storm.

Probably the most remarkable eyrie in the entire country stood until March, 1925, in the dead top of a shellback hickory near Vermilion, Ohio. These eagles had grown up with the country and had a history which could be traced back for more than eighty years.

Shaped like an ice cream cone, this great nest was 12 feet high, 8½ feet across its flat

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The population of Tientsin is normally about 1,388,000, but the recent disturbances have caused many Chinese from the north to flock to the city for protection.

Tientsin, unlike Peiping, has few Chinese architectural attractions, but it possesses many palatial banks, ranking next to Shanghai in the number and beauty of its modern business institutions. The British, French, Japanese and Italian concessions, cities within the city, which lie along the river south of the native quarter, impart a strong Western flavor to Tientsin.

One place, however, the Sea View Buddhist Temple, is of historic interest. Here Lord Elgin signed the Tientsin Treaty in 1858, which eventually opened Tientsin and several other ports to foreign trade.

Gordon Hall, named for General "Chinese" Gordon, of Taiping Rebellion fame, is one of Tientsin's most imposing buildings. It includes the British municipal offices, the public library, and an entertainment hall. The city has three railroad stations which connect it with lines leading to Manchuria, Peiping, and Nanking and Shanghai.

Note: For other data about Chihli Province see: "From Mediterranean to Yellow Sea by Motor," *National Geographic Magazine*, November, 1932; "How Half the World Works," April, 1932; "Farmers Since the Days of Noah," April, 1927; "The Road to Wang Ye Fu," February, 1926; "The Great Wall of China," February, 1923; and "How the World Is Fed," January, 1916.

See also in the GEOGRAPHIC NEWS BULLETINS: "Mongolia, Western Frontier of Expanding Manchoukuo," Week of April 24, 1933; also "Shanhaikwan, Where China's Great Wall Meets the Sea," Week of January 16, 1933.

Bulletin No. 2, May 8, 1933.

© *Photograph by Robert Scheindlenger*

THE "PIG TAIL" IS A RARE SIGHT IN CHINA TO-DAY

Since the Republic was established in 1912 the Chinese have trimmed their hair in Western fashion, but an occasional farmer gives employment to the street barber, such as this one in Tientsin. Once combings from Chinese "pig tails" were made into hairnets which were exported in large quantities to America, but this industry died when the hairnet went out of style.

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River Indus, the Nile of India, Has Been Harnessed

ONE of the greatest irrigation projects in the world is nearing completion at Sukkur, India, where a $75,000,000 dam was recently dedicated. The new barrier, known as the Lloyd Dam, will divert water from the River Indus into some 5,000,000 acres of arid plains of Sind, in northwest India.

Karachi, near the mouths of the Indus, famous stop-over and fueling station for Europe-Asia-Australia air pilots, has hopes of having its docks piled high with bags of rice, cotton bales, and wool products for export.

"The Land of Five Rivers"

Already the Indus has served India's teeming millions as one of Nature's own mightiest irrigation systems. Lay your hand, with fingers outspread, flat on the table before you. Your five fingers will be the tributaries which give Punjab its name, meaning "The Land of Five Rivers."

These five rivers unite in the wrist, which is comparable to the Indus proper, and then they spread again into a delta, fertilizing a broad span of coast as does the Nile.

Whence comes this vast volume of water? From Nature's greatest reservoir —from India's northern mountain wall, the Hindu Kush range, the Pamir, and the west Himalaya range—which collects the moisture out of thin air by tons, stores it up in the form of snow and ice, and filters it down through the Indus, and all across the Indus-Ganges plain which, otherwise, would be as dry and desolate as the Sahara.

Will Water Area Size of Massachusetts

The effect of the Sukkur dam is to add to this India prairie region an arable area the size of our State of Massachusetts.

In the dry season, the Indus is the only source of water for millions of acres of land which are irrigated by a network of canals. Then, in March and April, when the warm spring sun melts mountain snows along its upper course, the swollen stream releases an increased volume of water which overflows its banks, drenching adjacent lands and depositing new layers of rich soil.

Often the melting process has been so sudden that the stream becomes a torrent, sometimes changing its twisting course, in its rush to the sea. Whole villages have been swept from its new path, soil has been stripped clean from thousands of acres of fine farm land, and villages near its old course deserted to parch in the hot desert sun.

Level Rises 50 Feet in Gorges

A few years ago, the swollen Indus weakened the walls of a mountain canyon, causing them to crumble and dam the stream. The sheer weight of water finally burst through the barrier, turning loose a wall of water that wreaked havoc in the plains below.

The Indus winds northwestward from its source in the Himalayas to a point near the town of Gilgit, one of the principal mountain stops of the Citroën-Haardt Trans-Asia Expedition, with which the National Geographic Society coöperated in

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top, and towered 81 feet above the ground. It offered such a good opportunity for intimate study of eagle home-life that two observatories were erected in a large 100-foot elm near-by. The upper platform was capped by a khaki tent to hide the observers from the eagles' eyes.

For many days the old eagles were studied for hours at a time, but the main object was always the eyrie itself. Projected upon the brown tapestry of orderly fields of growing corn and waving grain far below, and the blue waters of Lake Erie a mile distant, the eyrie was really the stage of a vast theater.

Note: *The National Geographic Magazine* will publish an article about eagles, illustrated by colored pictures, in an early issue. See also: "The Eagle in Action," May, 1929. Students interested in bird life and colored pictures of our feathered friends of woods and meadows should also consult: "North American Woodpeckers," April, 1933; "Crows, Magpies, and Jays," January, 1933; "Large Wading Birds," October, 1932; "Wild Life of the Atlantic and Gulf Coasts," September, 1932; "Photographing the Nest Life of the Osprey," August, 1932; "Seeking the Smallest Feathered Creatures," July, 1932; "Befriending Nature's Children," February, 1932.

Bulletin No. 3, May 8, 1933.

© *Photograph by Francis H. Herrick*

COMING HOME WITH A FISH DINNER

A mother eagle puts on the "brakes" when about to land on the eyrie with a large fish held in both talons. The eaglet in gray down is five weeks old. This excellent study of eagle "home life" was secured from a steel observation tower 91 feet high, erected beside an eyrie near Vermilion, Ohio, in 1925.

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Portugal Trades Its Dictator for a President

THE trend toward dictatorships that has marked world politics since the World War has received another jolt. After seven years, Portugal's dictator and his ministry recently resigned when a new constitution was adopted at the polls.

In trading its Dictator for a President, Portugal is following the example set by Spain in 1931. But, because Portugal has governmentally fallen into line with its larger neighbor of the Spanish or Iberian Peninsula, it must not be considered that the two countries are becoming any more alike. The differences between Spain and Portugal are quite marked.

Spain Is Dry; Portugal Moist

Even geographically there is little in common between the two nations. Much of Spain is dry, barren table-land; but Portugal, sloping westward to the Atlantic Ocean from the mountains which bound it on the east, is well watered, and many of its hills are covered with luxuriant forests of oak, pine, chestnut, and cork oak trees. Many fruits thrive in vast orchards and vineyards, and about one-third of the Republic's area is in farms.

Portugal emerged as an independent country in the twelfth century. Although 2,000 miles of railroads have been built, automobiles speed over good roads that have been thrust through some of the country's beauty spots, and tractors rumble over some farms, the traveler still sees remnants of the days when the Romans dominated this part of Europe. Often automobiles must swerve to pass solid-wheeled carts drawn by oxen and donkeys, while farmers tilling the soil with iron-shod, crooked-stick plows look on.

The Tagus River, at the mouth of which lies the beautiful capital and metropolis of the country, Lisbon (Lisboa), forms both an ethnic and economic dividing line. North of the river, inhabiting about three-fifths of the country, are the Celtic, Gothic and Latin racial mixtures, with little or none of the Moorish or African strain so often met in the south. It is a region of small farms, largely cultivated by the proprietors and their families. The people are intensely patriotic and have been ever ready to defend their country against foreign invasion.

Wine, Olive Oil and Cork

The famous wine country of Portugal is in the Valley of the Duero River and its tributaries near the northern border. It is estimated that in a favorable year more than 20 gallons of "Port" are produced annually for each man, woman and child in the country, much of it from the Duero region.

From northern Portugal also comes a large part of the olive oil that the country produces. Nearly two gallons of olive oil per inhabitant are produced annually. The Republic's cork forests, however, are one of the chief sources of wealth. From them come nearly half of the cork produced in the world.

South of the Tagus, the long occupation by the Moors has left its marks on architecture and the people. Almost pure Berber types are met. Huge estates and plantations are maintained in this part of the country and are worked largely by peasants and day-laborers.

Portugal covers the greater part of the ancient province of Lusitania. The

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its motor car crossing of Asia in 1931-32. Then it veers southward to the Arabian Sea across the plains of the Punjab and Sind Province.

In the mountains its torrent tumbles through deep gorges in the shadow of some of the world's highest mountain peaks. In flood time travelers have seen the river rise in gorges to upwards of 50 feet.

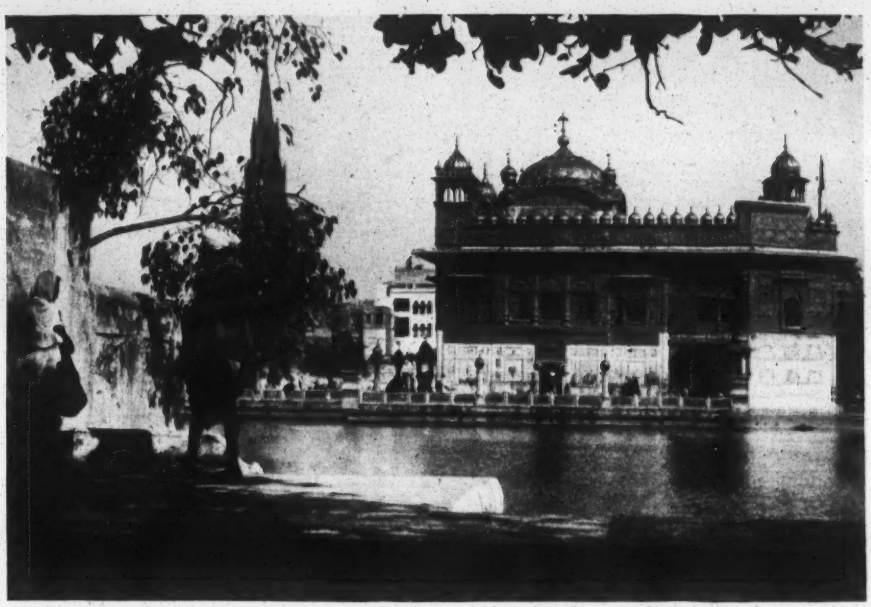
Drops 18,000 Feet in Its Course

In its 1,700-mile course, the river drops about 18,000 feet. About 16,000 feet of that drop takes place in the first thousand miles, which are in the mountains. Even when the river passes into the plains, it flows for many miles at the rate of more than six miles an hour.

The Indus of the plains flows in a bed ranging from a half mile to a mile wide. The tide is felt for only 80 miles from its mouth, but small boats can navigate its channel almost to the foot of the mountains. At normal times it contributes about 41,000 cubic feet of water per second to the Arabian Sea. In flood times, ten times as much water flows through its delta.

Note: Additional photographs and references to the Indus Valley, the Punjab, and the Sind will be found in the following: "Flying the World," *National Geographic Magazine*, June, 1932; "First over the Roof of the World by Motor," March, 1932; "On the World's Highest Plateaus," March, 1931; "House-Boat Days in the Vale of Kashmir," October, 1929; "Pathfinder of the East," November, 1927; "From England to India by Automobile," August, 1925; "From London to Australia by Aëroplane," March, 1921; and "Through the Heart of Hindustan," "Pilgrimage to Amernath," "Outwitting the Water Demons of Kashmir," and "The Marble Dams of Rajputana," November, 1921.

Bulletin No. 4, May 8, 1933.



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A GOLDEN TEMPLE GLISTENS ON AMRITSAR'S "POOL OF IMMORTALITY"

Several rich Indian cities lie within the vast area drained by the Indus and its tributaries, among them Amritsar, a few miles east of Lahore. The Darbar Sahib, or Golden Temple, has a copper dome covered with radiant gold foil, and it houses the Holy Book of the Sikh faith. India has many such glittering temples and, it is believed, vast stores of hidden gold (See also Bulletin No. 1).

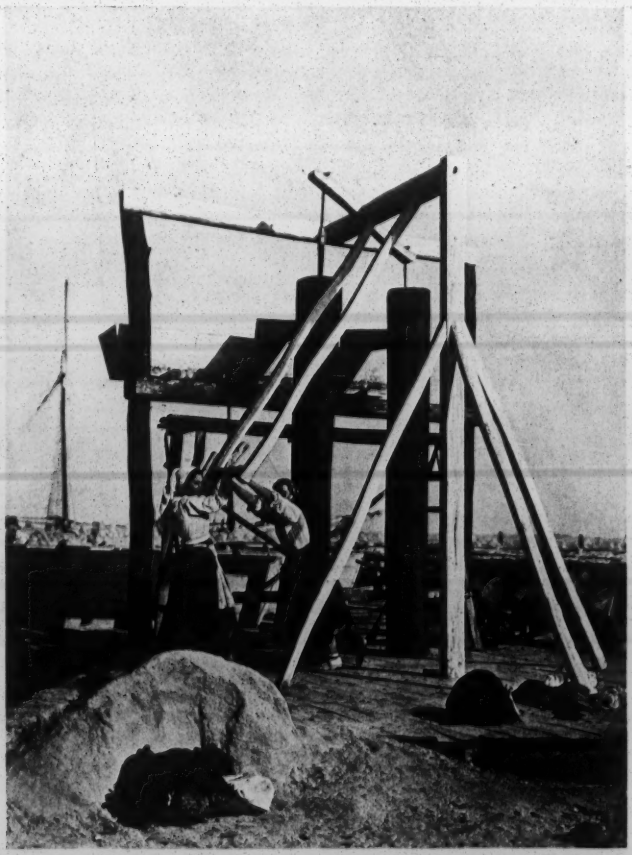
Lusitanians are supposed to have been Celtic "Iberians" with strains of Phoenician and Greek blood. The conquering Romans did not contribute much to the blood of the Portuguese but gave them their language, which some scholars aver is closer to the pure Latin than that of any other Romance people. When the Roman Empire fell, Portugal was overrun by the Visigoths from the north and by the Moors from the south. The result of the mingling of these two peoples with those whom they found is evident in Portugal to-day.

In the fifteenth century, the Portuguese began an ordered search for hidden places of the earth. Although many regions of the world claimed by them a few centuries ago now are under the flags of other countries, the Portuguese colonial dominion to-day is still twenty-six times the area of the homeland. The Azores and Madeira Islands are politically part of Portugal itself.

Portugal was a kingdom until 1910, when King Manuel II was dethroned.

Note: See also "An Altitudinal Journey Through Portugal," also "Pathfinder of the East," *National Geographic Magazine*, November, 1927; "Lisbon, the City of the Friendly Bay," November, 1922; and "Rio De Janeiro, in the Land of the Lure," September, 1920.

Bulletin No. 5, May 8, 1933.



© *Photograph by A. W. Cutler*

A PRIMITIVE GIRL-POWER WATER PUMP

In spite of political revolution and a return to democracy, Portugal has known no industrial revolution. For about 25 cents a day two girls run back and forth, swinging the heavy handle of this see-saw pump near Aveiro, Portugal.